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EXAMINER	
BOYER, RANDY	

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1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/711,308	**Applicant(s)** NICCUM ET AL.	
	Examiner RANDY BOYER	**Art Unit** 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-6,21-25 and 27-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6,21-25 and 27-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges Applicant's response filed 24 April 2008 containing amendments to the claims and remarks.

2. Claims 1, 4-6, 21-25, and 27-33 are pending.

3. The previous rejections of claims 1, 4-6, 21-24, 26, and 27 under 35 U.S.C. 103(a) are maintained.

4. New grounds for rejection of claims 25 and 28-33, necessitated by Applicant's amendment to the claims, are entered under 35 U.S.C. 103(a). The rejections follow.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 5, 6, 21-25, 26, and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4,692,311). Alternatively, claims 1, 5, 6, 21-24, 26, and 27 are rejected under 35 U.S.C. 103(a) over Parker (US 4,692,311) in view of Simpson (US 7,108,138) and as further evidenced by Dewitz (US 5,869,008) or Ko (N.W.M. Ko & A.S.K. Chan, *In the Intermixing Region Behind Circular Cylinders With Stepwise Change of the Diameter*, 9 EXPERIMENTS IN FLUIDS 213-221(1990)) or Mori (US 6,041,754) or Wasif (US 2005/0016178) or Hwang (US 2005/0183664).

9. With respect to claim 1, Parker discloses a particulate stripping unit (Fig. 2) for separating particles in suspension with a carrier fluid with a self-stripping disengagement feature, comprising: (a) a vessel (17) having a cyclone section (24) and a stripping section (27); (b) an inlet (31) to tangentially feed a particulate-fluid suspension to the cyclone section (24); (c) a cylindrical surface within the cyclone

section (24) to separate a major fraction of the particulates from the suspension and form a central fluid vortex of reduced particulate content; (d) a particulate discharge outlet (39) from the cyclone section (24) to the stripping section (27); (e) a plurality of apertures disposed through a lower portion of the stripping section (see Parker, Fig. 2; and column 6, lines 22-24); and (f) a discharge line (20) from the cyclone section (24) in communication with the vortex.

Parker does not disclose wherein the particulate stripping unit comprises a stripping section having a cross sectional area less than a cross sectional area of the cyclone section.

However, it is known to those in the art that changes in diameter of a conduit through which fluid flows will induce a vortex to form therein.[1] For example, Simpson discloses a material classifier device that uses an internal cyclone to separate coarse particles from fine particles (see Simpson, Abstract). Simpson instructs that "in order to enhance and aid the interior vortex development, one needs to introduce diffuser air at a cylinder diameter larger than the cyclone outlet diameter" (see Simpson, column 6, lines 12-24). Examiner further notes that Simpson discloses wherein his cyclone material classifier uses "a plurality of openings disposed through a lower portion of the

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1 See generally, N.W.M. Ko & A.S.K. Chan, *In the Intermixing Region Behind Circular Cylinders With Stepwise Change of the Diameter*, 9 EXPERIMENTS IN FLUIDS 213-221(1990). See also Mori (US 6,041,754) (column 1, lines 39-43) ("Similarly, if there is a step difference where the passageway diameter expands in the direction of advance of intake air in the idle intake passageway [ ] downstream of the idle intake regulation valve [ ], a vortex is generated downstream of the step."); Wasif (US 2005/0016178) (page 2, paragraph 23) ("The flat geometry of the burner insert assembly [ ] provides an abrupt diameter change from the outlet end of the main burner [ ] to the combustion chamber [ ], which causes a flow vortex [ ] just downstream of the burner insert assembly [ ] within the combustion chamber."); and Hwang (US 2005/0183664) (page 1, paragraph 12) ("The vortex of the process gas G is generated due to the above-mentioned abrupt diameter difference.").

stripping section" (see Simpson, column 6, lines 12-24) which he again cites as important to aid in the formation and sustainability of the interior vortex.

Therefore, the person having ordinary skill in the art of particulate stripping units would have been motivated to modify the unit of Parker by increasing the cross sectional area of the cyclone section relative to the stripping section (as is known in the art and further evidenced by Simpson) in order to ensure rapid development and sustained strength of an interior vortex necessary to separate particulates from the carrier fluid.

Finally, the person having ordinary skill in the art of particulate stripping units would have had a reasonable expectation of success in modifying the unit of Parker as taught by Simpson because: (1) both Parker and Simpson are concerned with the cyclonic removal of particulate matter from a carrier fluid; and (2) Parker's unit is not specifically limited to the embodiment shown in his Fig. 2.

10. With respect to claim 5, Parker discloses wherein the particulate stripping unit (17) further comprises a stabilizer (26) disposed between the vortex (in the cyclone zone (24)) and the stripping section (27), the stabilizer (26) comprising an annular passage disposed therethrough.

11. With respect to claim 6, Parker discloses wherein the particulate stripping unit inlet (31) is connected to a riser reactor (see Parker, column 1, lines 14-19; and column 2, lines 44-49).

12. With respect to claim 21, Parker discloses a method for stripping vapor from a suspension in a carrier gas, comprising: (a) separating particulates from the

suspension in a separation zone having a first-cross-sectional area to form a particulate-rich stream with entrained vapor and a vapor stream lean in suspended matter; (b) introducing a stripping fluid through a plurality of apertures formed through a lower exterior wall of a stripping zone below the initial separation zone; (c) passing the particulate-rich stream from the separation zone through the stripping zone, making countercurrent contact with the stripping fluid to remove at least a portion of the entrained vapor, and into a dipleg in communication with the stripping zone; and (d) recovering stripped particulates from the dipleg (see Parker, Fig. 2; column 2, lines 35-68; and column 3, lines 1-10).

Parker does not disclose wherein the stripping zone has a second cross-sectional area less than the first cross-sectional area of the separation zone.

However, it is known to those in the art that changes in diameter of a conduit through which fluid flows will induce a vortex to form therein. For example, Simpson discloses a material classifier device which uses an internal cyclone to separate coarse particles from fine particles (see Simpson, Abstract). Simpson instructs that “in order to enhance and aid the interior vortex development, one needs to introduce diffuser air at a cylinder diameter larger than the cyclone outlet diameter” (see Simpson, column 6, lines 12-24). Examiner further notes that Simpson discloses wherein his cyclone material classifier uses “a plurality of openings disposed through a lower portion of the stripping section” (see Simpson, column 6, lines 12-24) which he again cites as important to aid in the formation and sustainability of the interior vortex.

Therefore, the person having ordinary skill in the art of particulate stripping units would have been motivated to modify the unit of Parker by increasing the cross sectional area of the cyclone section relative to the stripping section (as is known in the art and further evidenced by Simpson) in order to ensure rapid development and sustained strength of an interior vortex necessary to separate particulates from the carrier fluid.

Finally, the person having ordinary skill in the art of particulate stripping units would have had a reasonable expectation of success in modifying the unit of Parker as taught by Simpson because: (1) both Parker and Simpson are concerned with the cyclonic removal of particulate matter from a carrier fluid; and (2) Parker's unit is not specifically limited to the embodiment shown in his Fig. 2.

13. With respect to claim 22, Parker discloses wherein the stripping zone is in fluid communication with the initial separation zone via an annular passage defined by an outside diameter of a stabilizer (26) and an interior wall of the stripping zone (27) (see Parker, Fig. 2 and accompanying text).

14. With respect to claims 23 and 24, Parker discloses a cyclone having a stripping zone (27) in communication with the upper portion (cyclone zone (24)), wherein the cyclone bottom includes a dipleg (23) to receive the solids rich stream from the stripping zone and a plurality of openings (see Parker, Fig. 2) in the wall of the cyclone bottom to introduce stripping fluid into the stripping zone; and wherein the new cyclone bottom comprises a vortex stabilizer (26) and an interior wall of the cyclone bottom that defines an annular passage (39) there between.

Parker does not disclose wherein such cyclone apparatus is made by retrofitting an existing cyclone.

However, Parker specifically notes the advantages provided by his cyclone design. He explains that prior attempts to introduce stripping gas directly into a cyclone separator resulted in a loss of separation efficiency, and thus was impractical (see Parker, column 2, lines 22-24). This problem was overcome by Parker's design through the addition of the vortex stabilizing means (26). Thus, the vortex stabilizer (26) allows for the *unitary* design of Parker's cyclone separator/stripper, providing (1) quick stripping time to remove bulk product vapor and interstitial vapor, and (2) longer stripping time required to desorb hydrocarbon products from the catalyst (see Parker, column 2, lines 14-35). Examiner finds that following the steps of Applicant's "method of retrofitting an existing cyclone to a self-stripping cyclone" as defined by claims 23 and 24 would result in the unitary design of Parker's cyclone separator/stripper as modified in view of Simpson (see discussion *supra* at paragraph 9). Moreover, it is generally known in the art to retrofit existing cyclones, e.g. in order to make use of existing process equipment and to save on new equipment costs (see e.g., Dewitz (US 5869008) at column 9, lines 19-46).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to retrofit an existing cyclone to a self-stripping cyclone of the type disclosed by Parker by installing a new cyclone bottom to an upper portion of the existing cyclone in order to provide a stripping zone in communication with the upper portion, wherein the cyclone bottom includes a dipleg to receive the solids

rich stream from the stripping zone and a plurality of openings in the wall of the cyclone bottom to introduce stripping fluid into the stripping zone; and wherein the new cyclone bottom comprises a vortex stabilizer and an interior wall of the cyclone bottom that defines an annular passage there between.

15. With respect to claim 25, see discussion *supra* at paragraph 9. Examiner notes that the sintered ring (34) of Parker would necessarily contain “a plurality of unobstructed openings formed therethrough” in order to allow for diffusion of the ammonia and air up through the lower portion of Parker’s device. Examiner notes that if the sintered ring (34) of Parker did not contain such “plurality of unobstructed openings formed therethrough,” then the device of Parker would be rendered completely inoperable.

16. With respect to claim 27, the person having ordinary skill in the art would recognize that the apparatus of Parker as modified to incorporate a change in diameter would *necessarily* have a tapered transition section disposed between the upper section and the lower section. Moreover, Simpson discloses wherein a tapered transition section is disposed between the upper section and the lower section of an apparatus for separating particulates from a carrier fluid (see Simpson, Fig. 2 and Fig. 5).

17. With respect to claim 28, Parker discloses wherein the conical member (25, 26) comprises an apex (25) disposed toward the upper section (24) and a base (26) defining one or more passages with an inner wall of the lower section (27, 35).

18. With respect to claim 29, see discussion *supra* at paragraphs 12 and 15.

19. With respect to claims 30 and 32, Parker discloses wherein the stripping fluid velocity will depend on catalyst circulation rate and cyclone (i.e. catalyst bed) cross sectional area (see Parker, column 6, lines 64-66). In addition, Parker provides the results from a pilot scale study in which he relates catalyst flow rate to stripping fluid rate (see Parker, Table 1) and provides comparison to commercial-scale operations (see Parker, column 6, lines 66-68; and column 7, lines 1-6). In this regard, the court has instructed that the mere scaling up of a prior art process capable of being scaled up does not establish patentability in a claim to an old process so scaled. *See In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to scale the apparatus and process of Parker in order to provide an average solids flux rate of from 24 to 440 kg per square meter of cross-sectional area per second, and stripping fluid at an average fluid velocity of from 9 to 90 meters per second.

20. With respect to claim 31, Parker discloses wherein the method includes passing fluid up through the annular passage at a superficial velocity range of 0.1 to 5 meters per second (see Parker, column 6, lines 66-68).

21. With respect to claim 33, Parker discloses wherein the particulate-fluid suspension is a fluidized catalytic cracker riser stream containing hydrocarbon gas and particulates (see Parker, Abstract; and column 1, lines 10-19).

22. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4,692,311) in view of Fandel (US 5,843,377). Alternatively, claim 4 is rejected

under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4,692,311) in view of Simpson (US 7,108,138) and Fandel (US 5,843,377).

23. With respect to claim 4, Parker discloses a particulate stripping unit (Fig. 2) for separating particles in suspension with a carrier fluid with a self-stripping disengagement feature, comprising: (a) a vessel (17) having a cyclone section (24) and a stripping section (27); (b) an inlet (31) to tangentially feed a particulate-fluid suspension to the cyclone section (24); (c) a cylindrical surface within the cyclone section (24) to separate a major fraction of the particulates from the suspension and form a central fluid vortex of reduced particulate content; (d) a particulate discharge outlet (39) from the cyclone section (24) to the stripping section (27); (e) a plurality of apertures disposed through a lower portion of the stripping section (see Parker, Fig. 2; and column 6, lines 22-24); and (f) a discharge line (20) from the cyclone section (24) in communication with the vortex.

Parker does not disclose wherein the particulate stripping unit comprises (1) a stripping section having a cross sectional area less than a cross sectional area of the cyclone section; or (2) a thermal expansion joint disposed on the discharge line from the cyclone section.

However, it is known to those in the art that changes in diameter of a conduit through which fluid flows will induce a vortex to form therein. For example, Simpson discloses a material classifier device which uses an internal cyclone to separate coarse particles from fine particles (see Simpson, Abstract). Simpson instructs that "in order to enhance and aid the interior vortex development, one needs to introduce diffuser air at

a cylinder diameter larger than the cyclone outlet diameter" (see Simpson, column 6, lines 12-24). Examiner further notes that Simpson discloses wherein his cyclone material classifier uses "a plurality of openings disposed through a lower portion of the stripping section" (see Simpson, column 6, lines 12-24) which he again cites as important to aid in the formation and sustainability of the interior vortex. In addition, Fandel discloses an FCC separation system that uses a gas collection conduit that incorporates an expansion element for accommodating differential growth between different subunits of the FCC separation system (see Fandel, Abstract). Fandel explains that the expansion elements (e.g. thermal expansion joints) are provided to relieve stresses associated with differential expansions occurring as a result of changes in process temperature (e.g. during process start-up and shut-down). Thus, such expansion elements are provided as a means to eliminate rigid connections between subunits of the FCC system, and allow for positional changes of the process equipment in relation to changes in process temperature that would otherwise cause damage to the equipment as a result of thermal stress or fatigue failure (see Fandel, column 2, lines 11-19; column 3, lines 2-4 and 62-67; and column 4, lines 1-13).

Therefore, the person having ordinary skill in the art of particulate stripping units would have been motivated to (1) modify the unit of Parker by increasing the cross sectional area of the cyclone section relative to the stripping section (as is known in the art and further evidenced by Simpson) in order to ensure rapid development and sustained strength of an interior vortex necessary to separate particulates from the carrier fluid; and (2) incorporate the thermal expansion joints of Fandel into the

particulate stripping unit of Parker in order to prevent equipment failure brought about by thermal expansion of the unit connections.

Finally, the person having ordinary skill in the art of particulate stripping units would have had a reasonable expectation of success in modifying the unit of Parker as taught by Simpson and Fandel because: (1) Parker, Simpson, and Fandel are all concerned with the cyclonic removal of particulate matter from a carrier fluid; and (2) Parker's unit is not specifically limited to the embodiment shown in his Fig. 2.

Response to Arguments

24. Applicant's arguments filed 24 April 2008 have been fully considered but they are not persuasive.

25. Examiner understands Applicant's principal arguments to be:

I. A sintered metal ring, such as that used by Parker, has no "apertures" or "unobstructed openings" as required by Applicant's claims.

II. Parker does not teach, show, or suggest an apparatus for separating particulates from a carrier fluid, comprising an upper section with a first cross-sectional area, a lower section with a second cross-sectional area, wherein the second cross-sectional area is less than the first cross-sectional area.

III. Examiner's assertion that changes in diameter of a conduit through which a fluid flows will induce a vortex to form therein is misguided and irrelevant as pertaining to Applicant's invention as the vortex of Applicant's device is not formed in such manner.

IV. Simpson does not teach, show, or suggest introducing stripping fluid through a plurality of

unobstructed openings formed through a lower exterior wall of a stripping zone.

V. The air slots disclosed by Simpson are disposed around the outer cylindrical wall of the diffuser housing and not disposed through a lower portion of the stripping section as required in the claims.

VI. Modifying Parker as taught by Simpson would "frustrate the intent and objective" of Parker.

26. With respect to Applicant's first argument, Examiner notes that the sintered ring (34) of Parker would necessarily contain "a plurality of unobstructed openings formed therethrough" in order to allow for diffusion of the ammonia and air up through the lower portion of Parker's device (see Parker, Fig. 2). Examiner submits that if the sintered ring (34) of Parker did not contain such "plurality of unobstructed openings formed therethrough," as Applicant argues, then the device of Parker would be rendered completely inoperable.

27. With respect to Applicant's second argument, Simpson (not Parker) discloses an apparatus for separating particulates from a carrier fluid, comprising an upper section (101) with a first cross-sectional area, a lower section (301) with a second cross-sectional area, wherein the second cross-sectional area is less than the first cross-sectional area (see Simpson, drawings). Thus, Applicant's argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

28. With respect to Applicant's third and sixth arguments, Examiner notes that the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. See MPEP § 2144. Thus, Applicant is correct in saying that Applicant's vortex is not formed primarily as a result of a step change in diameter between the stripping and cyclone sections (see Applicant's specification at paragraph 41) ("In the operation of the self-stripping cyclone, the fluid/particulate suspension 102 enters the cyclone vessel 104 tangentially and swirls circumferentially against the cylindrical surface of the vessel, forming the vortex 112."). However, the vortex of Simpson is formed in substantially the same manner (see Simpson, column 4, lines 60-64) ("Granular material is received into cyclone 100 through cyclone inlet 102 which is positioned in such a manner [i.e. tangentially] to set up cyclonic motion within cyclone housing 101 as depicted schematically with the dark arrows which are denoted as blower air 105"). Nevertheless, Simpson goes on to explain that step changes in diameter work "to enhance and aid the interior vortex development" (see Simpson, column 6, lines 16-19). Thus, inasmuch as a major objective of Parker is to provide a stronger, more stable, and more efficient cyclone separation means (see Parker, column 3, lines 35-44), Examiner submits that the person having ordinary skill in the art would have found sufficient motivation from Simpson to modify the design of Parker to provide an upper cyclone zone having a larger cross-sectional area than a lower

stripping zone (similar to the design of Simpson) in order to "enhance the interior vortex development" in the upper cyclone zone of Parker's device.

29. With respect to Applicant's fourth and fifth arguments, Examiner submits that Parker (not Simpson) discloses introducing stripping fluid (ammonia, air) through "a plurality of unobstructed openings" formed through a lower section (i.e. the sintered ring) of the stripping zone. Thus, Applicant's argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB

/Glenn A Caldarola/

Acting SPE of Art Unit 1797